

four revisions in the course of Professor Smith's seventeen years' study and teaching at the Hopkins Marine Station. The rigorous tests which they have consequently undergone coupled with the fact that they are based almost exclusively on vegetative characters are good guarantees of their great value.

The illustrations, many of which were prepared by Mrs. Carl F. Janish, rank amongst the best that have been given of the algae. Approximately 80 per cent of the species are illustrated, many of them for the first time. The drawings show the general appearance of the plant but details of structure are also figured if necessary in the identification of genera or species.

Students of marine algae throughout the world will welcome this volume. The work may well serve as a guide in the preparation of future marine floras.—GEORGE F. PAPPENFUSS, Department of Botany, University of California, Berkeley.

Illustrated Flora of the Pacific States. Volume two. Buckwheats to Kramerias. By LEROY ABRAMS. Pp. viii + 635, with 1663 figs. Stanford University Press. 1944. \$7.50.

Volume two of this important work embraces those families from Polygonaceae through Krameriaceae. As in volume one the species, with very few exceptions, are illustrated, but unlike the preceding volume the illustrations are aggregated on separate pages, thus reducing costs and greatly enhancing the appearance of the format. The quality of the illustrations is much improved and greater attention has been paid to the depiction of significant details.

The treatment of families follows the author's established policy of segregation; thus we find instead of the single family, Leguminosae, the families Caesalpinaceae, Mimosaceae and Fabaceae. The Rosaceae and Saxifragaceae of other California authors receives similar treatment, a point of view that can be easily and logically defended. Certain inconsistencies in this policy stand out with respect to some of the smaller families. Aizoaceae includes two somewhat discordant elements, the Molluginaceae having hypogynous flowers and a curved embryo much like that found in the Caryophyllaceae, and the Ficoidaceae with its epigynous or perigynous flowers and an embryo that in most cases is bent much like that in many Cactaceae. Cabombaceae with its ranalian type of flower is included with the Nymphaeaceae, a group having many features allying it with the Rhoedales. These are minor problems and the urge to split these families certainly does not have behind it the impelling force of "facility in handling" that one finds in such large families as Leguminosae and Rosaceae.

A similar policy is adhered to in the treatment of genera, for example, it seems good judgment to separate *Grossularia* from *Ribes* and *Fendlerella* from *Whipplea*. The number of "problem

genera" treated in volume two is outstanding. It was no easy task to arrive at decisions in such genera as *Chorizanthe*, *Eriogonum*, *Atriplex*, *Montia*, *Lewisia*, *Silene*, *Ranunculus*, *Delphinium*, almost the entire Cruciferae, *Dudleya*, the *Potentilleae*, *Lupinus*, *Trifolium*, *Astragalus* and *Hosackia*. To be sure, the treatments of some of these genera were contributed by specialists and others followed the works of specialists, but the genetic difficulties inherent in many of them would seem to defy rationalization in the light of the present state of our knowledge about them.

To some, the subspecific categories appearing in the work might seem a bit confusing since both of the terms "subspecies" and "variety" are used. In many genera the category subspecies is used while in others the category variety is used, and in others both categories appear. I suspect that this is not intended to indicate their arrangement in the order outlined for these categories in the International Rules but rather is evidence of the conservative policy of the author in avoiding, in a work of this type, the making of changes and new combinations except where necessitated by a change in status of the entity. The author is to be congratulated for this point of view. When a new combination is unavoidable, the subspecies category is utilized.

Each species is given a common name and in general these are perfectly good English or early Californian vernacular. The tendency among laymen to use the generic name with a vernacular adjective is given recognition with a euphonious and dignified result. This is a subtle way of overcoming the layman's horror of scientific names. It is gratifying to see that where it is necessary or desirable to combine words a hyphen is used in accordance with good grammatical custom.

During the long interval that the volume was in press many entities in the area treated had been described as new and the concepts of others had been revised. These are mentioned, with their bibliographic reference, in the appendix at the end of the volume. Here, a count on the genus *Lupinus* reads like a tally sheet in a three-cornered race between Smith, Heller, and Eastwood. The score to date is Eastwood 45, Smith 22, and Heller 10.

The appearance of volume two further increases the desire to receive volumes three and four and thus bring to completion a work of which we are all justly proud.—HERBERT L. MASON, Department of Botany, University of California, Berkeley.